REMARKS/ARGUMENTS

The arguments and amendments submitted herein incorporate the patentability arguments and amendments Applicants discussed with the Examiner during the phone interview on March 20, 2007. Applicants submit that the amendments and arguments presented herein make the substance of the phone interview of record to comply with 37 CFR 1.133. If the Examiner believes that further information on the interview needs to be made of record to comply with the requirements, Applicants request the Examiner to identify such further information.

Applicants amended claim 27 as discussed during the phone interview to recite that the article of manufacture comprises "at least one of processor executable code in a computer readable storage medium and logic implemented in a hardware device". Applicants submit that these added requirements are disclosed on at least para. [0019], pg. 8 of the Specification.

Applicants amended claims 8, 20, and 34 to provide antecedent basis for the "overlap" element to overcome the indefiniteness rejection under 35 U.S.C. §112, par. 2 on pg. 2 of the Office Action.

Applicants further amended claims 2, 14, and 28 to recite that the unit of operation comprises one stripe indicated in the source map to migrate to one stripe indicated in the destination map to clarify the claim language.

Applicants further amended claim 13 to change "storage controller" to "system" to maintain consistency with the dependent claims.

The Examiner rejected claims 1-38 as anticipated (35 U.S.C. §102(b)) by King (U.S. Patent No. 6,540,004). Applicants traverse for the following reasons.

Claims 1, 13, 24, and 27 require: providing a source map indicating blocks of data striped across a first plurality of storage units and a destination map indicating blocks of data striped across a second plurality of storage units, wherein data is migrated from stripes indicated in the source map to corresponding stripes indicated in the destination map; and in response to determining that the source stripe and the destination stripe occupy a same physical location on the storage units, writing the data from a source stripe to a copy area and writing the data from the copy area to a corresponding destination stripe.

The Examiner cited col. 7, lines 13-26 of King as disclosing the claim requirement of in response to determining that the source stripe and the destination stripe occupy a same physical location on the storage units, writing the data from a source stripe to a copy area and writing the

data from the copy area to a corresponding destination stripe. (Office Action, pg. 3) Applicants traverse.

The cited col. 7 mentions a migration involving a RAID level change. When delta is zero, the destructive zone includes all stripe groups. One stripe group is copied onto the backup buffer and then that stripe is migrated from the source to destination. The direction of data migration is forward.

A destructive zone is the number of data stripes being migrated into the destination array that are liable to sufer data loss because they are being overwritten as a result of the migration. (King, col. 2, lines 4-9) King discusses a technique that calculates a delta value, based on the destination and source disk counts and a copy count value. The delta value is used to determine the number of stripes in the destructive zone. (King, col. 5, lines 55 to col. 6, line 67). Data stripes in the destructive zone are copied to a buffer before migration starts. (King, col. 2, lines 22-35, col. 4, lines 21-40)

Applicants submit that the cited and discussed King do not disclose the claim requirement that in response to determining that the source stripe and the destination stripe occupy a same physical location on the storage units, writing the source stripe to a copy area, and writing the data from the copy area to the destination stripe. Instead, King discusses using a delta value to determine a destructive zone of stripes, such that stripes to migrate in the destructive zone are written to a buffer. However, this does not disclose writing the stripe to a copy area if both the source and destination stripes are determined to occupy a same physical location.

For instance, King mentions that "the destructive zone spans an amount of storage that would or might be overwritten by data during migration". (King, col. 2, lines 32-38, col. 4, lines 35-40) Thus, the cited King does not disclose making a specific determination that a particular source stripe and destination stripe occupy a same location, and then writing that source stripe to a copy area. Instead, King discusses determining a general area or destructive zone of storage that "might be overwritten" during migration, and then writing that data to a buffer.

Accordingly, claims 1, 13, 24, and 27 are patentable over the cited art because the cited King does not disclose all the claim requirements.

Claims 2-12, 14-23, 25, 26, and 28-38 are patentable over the cited art because they depend from one of claims 1, 13, 24, and 27, which are patentable over the cited art for the

reasons discussed above. Moreover, the following dependent claims provide additional grounds of patentability over the cited art for the following reasons.

Claims 4, 16, 25, and 30 depend from claims 2, 13, 24, and 28, respectively, and further require indicating a number of a current unit of operation being processed; and indicating data is being copied through the copy area in response to determining that the source stripe and destination stripe involved in the current unit of operation occupy the same physical locations.

The Examiner cited col. 7, lines 13-25 of King as disclosing the additional requirements of these claims. (Office Action, pg. 3) Applicants traverse.

As discussed, the cited col. 7 mentions a migration involving a RAID level change. When delta is zero, the destructive zone includes all stripe groups. One stripe group is copied onto the backup buffer and then migrate that stripe from source to destination. The direction of data migration is forward.

Although the cited col. 7 mentions that stripes in a destructive zone are copied to a buffer, there is no disclosure of the claim requirement of indicating data is being copied through the copy area in response to determining that the source stripe and destination stripe involved in the current unit of operation occupy the same physical locations. As discussed, the cited col. 7 does not disclose determining whether a particular source stripe and destination stripe occupy a same physical location as claimed.

Accordingly, claims 4, 16, 25, and 30 are patentable over the cited art because the additional requirements of these claims are not disclosed in the cited King.

Amended claims 8, 20, and 34 depend from claims 1, 13, and 27, respectively, and further require determining whether an overlap comprising the source stripe and the destination stripe occupying the same physical location is impermissible and aborting the migration in response to determining that the overlap is impermissible.

The Examiner cited col. 4, lines 50-57 as disclosing the additional requirements of these claims. (Office Action, pgs. 4-5) Applicants traverse with respect to the amended claims.

The cited col. 4 mentions identifying the number of stripe groups in the destructive zone based on factors that may include the RAID redundancy factor in terms of data copy count before and after the data migration, the number of data disks existing before and after data migration, and whether or not less data in a stripe group will result from the migration.

Nowhere does this cited col. 4 anywhere disclose or mention determining whether an overlap comprising the source stripe and the destination stripe occupying the same physical location is impermissible and then aborting the migration in response to determining that the overlap is impermissible. Instead, the cited col. 4 discusses how to identify the stripes in a destructive zone, which is the amount of storage that would or might be overwritten during the data migration.

Accordingly, claims 8, 20, and 34 are patentable over the cited art because the additional requirements of these claims are not disclosed in the cited King.

Amended claims 9, 21, and 35 depend from claims 8, 20, and 34, respectively, and further require that determining whether the overlap is impermissible comprises: determining a depth of a source volume including the source stripes and a depth of a destination volume including the destination stripes; determining a source physical location on one storage unit of a first block in a first stripe in the destination volume and a destination physical location on one storage unit of a first block in a first stripe in the source volume; and determining that the migration is impermissible in response to determining: (1) that the destination volume depth is less than or equal to the source volume depth and the destination physical location is greater than the source physical location or (2) that the destination volume depth is greater than the source volume depth and the destination physical location is less than the source physical location.

Applicants amended these claims to clarify their relationship to the intervening claims 8, 20, and 34 and the operation of determining whether the overlap is impermissible.

The Examiner cited col. 5, line 51 through col. 7, line 12 of King as disclosing the additional requirements of these claims. (Office Action, pg. 5)

The cited cols. 5-7 discuss calculating delta and migrating data for different values of delta. Applicants submit that the cited cols. 5-7 nowhere disclose or mention determining whether an overlap is impermissible, nor do they disclose that an overlap is impermissible in response to determining: (1) that the destination volume depth is less than or equal to the source volume depth and the destination physical location is greater than the source physical location or (2) that the destination volume depth is greater than the source volume depth and the destination physical location is less than the source physical location.

Accordingly, claims 9, 21, and 35 are patentable over the cited art because the additional requirements of these claims are not disclosed in the cited King.

Applicants added claims 39, 40, 41, and 42, which depend from claims 1, 13, 24, and 27, respectively, and further require an operation to copy the source stripe directly to the destination stripe in response to determining that the source stripe and the destination stripe do not occupy the same physical location on the storage units. This added requirement is disclosed on at least pg. 6, lines 20-22 of the Specification.

Applicant submit that these added claims are patentable over the cited art because they depend from claims 1, 13, 24, and 27, which are patentable over the cited art for the reasons discussed above, and because the additional requirements of these claims in combination with the base claims provide further grounds of patentability over the cited art.

<div align="center">Conclusion</div>

For all the above reasons, Applicant submits that the pending claims 1-42 are patentable over the art of record. Applicants submit herewith the fee for the added claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

Dated: March 21, 2007   By:____/David Victor/_____
                                                        David W. Victor
                                                        Registration No. 39,867

Please direct all correspondences to:

David W. Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: (310) 553-7977
Fax: 310-556-7984